

**REMARKS**

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-13 are pending in the present application. No claims are amended, added or cancelled by the present response.

In the outstanding Office Action, Claim 12 was rejected under 35 U.S.C. § 112, first paragraph and Claims 1-11 and 13 were rejected under 35 U.S.C. § 102(b) as anticipated by Lorenzen (U.S. Patent No. 5,718,560).

Applicants respectfully traverse the outstanding rejections for the following reasons.

Regarding the rejection of Claim 12 under 35 U.S.C. § 112, first paragraph, the outstanding Office Action notes on page 3, first full paragraph, that the specification “does not support a temperature change range as the upper limit and the lower limit are never referred to as a function of the heat exchanger device.”

Applicants respectfully submit that this statement is confusing and not understood. Thus, Applicants respectfully request that the examiner clarifies his position about Claim 12.

Claim 12 recites that “the fluid heat exchanger is configured to reduce a temperature of the gas seal from more than 200°C to around 100°C.” In this respect, it is noted that the originally filed specification states on page 2, second full paragraph,

that “[w]hen the temperatures at the compressor delivery are higher than 200°C, there is a sudden perishing of the washers, o-rings and vital parts of the gas seal.”

Further, the originally filed specification discloses on page 5, fifth full paragraph, that by providing a fluid heat exchanger around a gas seal it creates “an acceptable temperature (100°C) for the gas seal.”

Based on these two statements of the originally filed specification, Applicants believe that one skilled in the art would conclude that the novel fluid heat exchanger reduces a temperature in the compressor from over 200°C to 100°C as recited by Claim 12 or otherwise parts of the compressor would be damaged.

Accordingly, it is respectfully requested that this rejection be withdrawn.

**Lorenzen does not teach each claimed feature**

Claims 1-11 and 13 were rejected under 35 U.S.C. § 102(b) as anticipated by Lorenzen. More specifically, the outstanding Office Action states on page 2, in the Response to Arguments section, that “the heating device of Lorenzen is **inherently capable** of providing a cooling fluid since the structure claim by Applicant is substantially the same.” (Emphasis added).

The inherency argument proposed by the Examiner is believed to have no legal basis for the following reasons.

Independent Claim 1 recites, among other things,

a fluid heat exchanger positioned between the gas seal of the compressor and a housing wall of said seal; and

at least one inlet duct entering through the fluid heat exchanger and configured to supply a blockage gas to the gas seal, wherein the fluid heat exchanger is configured to keep the temperature of said seal low in the case of high temperatures of the wall and/or compressed gas.

Because the compressed gas flowing through a compressor may have a high temperature, various parts of the compressor may be damaged as described in the originally filed specification at page 2, second full paragraph.

To address this problem, the inventors have proposed adding the fluid heat exchanger at the position noted in Claim 1 above and cooling a seal when there are high temperatures in the compressed gas and/or a wall of the compressor.

In other words, the fluid heat exchanger of Claim 1 is configured to **cool** the seal.

Turning to the applied art, Lorenzen discloses at column 1, lines 47-62, that cooling a process gas during a standstill of the compressor “can have a series of disadvantages” as for example, products can be precipitated, formation of ice crystals, additional mechanical tensions on seals, etc.

Lorenzen describes at column 1, lines 32-34, these effects of cooling the process gas as having a “**devastating effect** on a dry-gas sliding ring during the start-up of a turbomachine.” (Emphasis added).

In response to these problems produced by the cooling of the process gas, Lorenzen states at column 1, lines 25-32 that “[i]t is an object of the present invention to prevent operating conditions ... which lead to dropout of the seal and the turbomachine.

This object is satisfied by a heating device which acts on the leakage flow ... and prevents an inadmissible cooling down of the leakage flow.”

In other words, the turbomachine of Lorenzen is configured to have a heater 18 that heats the leakage gas for preventing “the leakage flow from falling substantially below the temperature which occurs in operation,” as described at column 4, lines 10-14.

As noted above, the outstanding Office Action takes the position that the claimed fluid heat exchanger that is configured to cool the seal and Lorenzen's heater that is configured to heat the leakage gas have “substantially” the same structure and thus, Lorenzen's heater is inherently capable of cooling the leakage gas.

First, Applicants note that Lorenzen intends to heat the gas and not to cool the gas irrespective of the structure of the heater. In other words, even if Lorenzen's heater is capable to cool the gas, Lorenzen does not describe such a feature. In this respect it is noted that MPEP 2143.03 states that “[a]ll words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). This claimed feature of cooling the seal is not found in Lorenzen and appears to be ignored by the outstanding Office Action.

Second, Applicants note that MPEP § 2112 IV states that “[t]he fact that a certain result or characteristic **may** occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic.” Further, the MPEP states in the same paragraph that “[t]o establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is **necessarily** present in the thing described in the

reference, and that it would be so recognized by persons of ordinary skill.” (Emphasis added.)

In other words, the standard set forth by MPEP § 2112 IV with regard to establishing inherency is that the missing characteristic in the prior art is “necessarily” present in the prior art. The fact that the missing characteristic “may” be present in the prior art is not enough.

In the case at hand the outstanding Office Action has only asserted that the heater of Lorenzen is capable of cooling the leakage gas. However, the evidence presented by the Applicants indicates that on the contrary, Lorenzen only heats and not cools the leakage gas.

Third, Claim 1 recites that the fluid heat exchanger is configured to cool a seal while Lorenzen discloses that the heater 18 is configured to heat a leakage gas. In this regard, Figure 3 of Lorenzen shows the heater 18 being away from the seal 23 and 24 while Claim 1 recites and Figures 3 and 4 show the claimed heat exchanger 3 cooling the seal 1.

For the above noted reasons, Applicants believe that the outstanding rejections are overcome and the pending claims patentably distinguish over the applied art.

Accordingly, in light of the above discussion, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested. If, however, there are any remaining unresolved issues that would prevent the issuance of the Notice of Allowance, the Examiner is urged to contact the undersigned at (540) 361-2601 in order to expedite prosecution of this application.

Respectfully submitted,  
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